

CITY OF SOMERVILLE

SOMERVILLE • MASSACHUSETTS 02145

IAM -ENGINEERING Division

ST

1 FRANEY ROAD ~ 1 FLOOR

PHONE: 617-625-6600 ext 5400 • FAX: 617-625-4454

Dear Licensed Drainlayers,

As you are aware, a drainlayer's license entitles an individual to make application for a permit to lay pipe and install appurtenances, with the proper approvals, in City Right-of-Ways, for the purpose of conveying sanitary waste water, surface and subsurface runoff, potable water, and to undertake other permitted and approved work within the limits of public ways and easements or which might have impact on systems that affect the public health & safety and the integrity of the City's Infrastructure.

The City of Somerville, through the IAM – Engineering Division, is hereby issuing to each licensed drainlayer a new Permit Manual that explains and defines the City's standards for work in and around the City's Infrastructure. A digital copy of this manual can be found, and printed for your records, at <http://www.somervillema.gov/departments/iam/engineering>.

Each licensed Drainlayer shall be required to adhere to the rules and regulations set forth in this manual or risk losing his license as a Drainlayer in the City. **For the upcoming construction year, the Engineering Division would like to bring your attention to Section V, Backfilling of Excavation. This year we will focus our inspections on backfill material and compaction lifts within the right of way.**

By signing below, you acknowledge receipt of this manual and agree to adhere to the rules and regulations set forth in this manual. Permits will not be issued until this letter has been signed and returned to the IAM – Engineering Division.

The Engineering Division welcomes the opportunity to work with you and your company. Please feel free to contact this office if there are any questions.

Signed,

Somerville IAM – Engineering Division

I hereby certify that I am familiar with the rules and regulations set forth in the City of Somerville Permit Manual and I further attest that I will work in conformance with said rules and regulations.

Name: _____

Date: _____

Signature: _____

Title: _____

Company: _____

PERMIT MANUAL

**City of Somerville, MA
Department of Infrastructure &
Asset Management
Engineering Division**



Issued:
March 2013
Revised: May 2020

Traffic Management Approvals Required By City Traffic Engineer Prior to Issuance of Permit

NOTICE TO CONTRACTORS:

- Prior to commencing any construction activity given under this Street Opening/Occupancy Permit request, a Traffic Management Plan (TMP) **must** be submitted to, and approved by, the City Traffic Engineer.

City Traffic Engineer
Engineering Division
1 Franey Rd
Somerville, MA 02145
617-625-6600 x5400
engineering@somervillema.gov

- All TMP's submitted for review shall be in compliance with MUTCD guidelines:

<http://mutcd.fhwa.dot.gov/htm/2009/part6/part6c.htm#section6C01>

&

<http://mutcd.fhwa.dot.gov/HTM/2003/part6/part6h1.htm>

- The proposed TMP is subject to the ruling and approval of the City Traffic Engineer.
- Evidence of a TMP approved by the City Traffic Engineer must be shown.
- Construction work hours may be restricted on minor urban collector roadways in Somerville during peak commuter traffic flow hours (AM Commuter & PM Commuter Hours).
- Copy of approved TMP must be available at job site during any/all construction activity.

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REFERENCE 1 – MGL Chapter 82A: Excavation and Trench Safety

REFERENCE 2 – MGL Chapter 82 Sections 40A – 40E

REFERENCE 3 – MGL Chapter 83

REFERENCE 4 – Department of Telecommunication and Energy (DTE – Currently referred to as D.P.U.)

APPENDIX 1 -MONITORING WELLS

APPENDIX 2 -FEE SCHEDULE

APPENDIX 3 -RODENT CONTROL

A. PURPOSE OF PERMITS

City roadways have been established and are maintained primarily for the purpose of movement of vehicles and pedestrians. It is also desirable to allow individuals and utility companies to utilize highway rights of way for purposes other than transportation. However, to prevent recurring, dangerous, and annoying interruptions to traffic and pedestrians, and to avoid interference with future road construction and construction methods, it is necessary that strict control be maintained and standard procedures be followed for excavations, construction, and maintenance of City roadways.

B. DEFINITIONS

Excavation

"Excavation" shall mean any opening in the surface of a public place made in any manner whatsoever, except an opening in a lawful structure below the surface of a public place, the top of which is flush with the adjoining surface and so constructed as to permit frequent opening without injury or damage to the public place.

Public Place

"Public Place" shall mean any public street, way, place, alley, sidewalk, park, square, plaza, or any other similar public property owned or controlled by the City and dedicated to public use.

City

"City" shall mean the City of Somerville, its IAM Director and/or his/her designee.

Substructure

"Substructure" shall mean any pipe, conduit, tunnel, duct, manhole, vault, buried cable, or wire, or any other similar structures located below the surface of any public place.

Facility

"Facility" shall mean any pipe, pipeline tub, main, service, trap, vent, manhole, meter, gauge, regulator, valve, conduit, wire, tower, pole, pole line, anchor, cable, junction box, or any other material, structure, or object of any kind or character, whether enumerated herein or not, which is or may be lawfully constructed, left, placed or maintained in, upon, along, across, under, or over any public place.

Person

"Person" shall mean any person, firm partnership, association, corporation, company, or organization of any kind.

Utility

"Utility" shall mean a private company, corporation, or quasi-municipal corporation under the direction and control of the Public Utilities Commissioner.

Newly, Constructed, Reconstructed, or Repaved Streets

"Newly constructed, reconstructed, or repaved streets" shall mean any street which has been newly constructed, reconstructed, or repaved within the past five (5) years. A list can be found at the IAM-Engineering Division and on the City website: www.somervillema.gov.

C. APPLICATION FOR PERMIT

An application for permit must be filed with the City of Somerville before preliminary investigation will be made for permit issue. Standard application forms for this permit may be found and applied for at www.citizenserve.com, which can also be found on the Engineering page of the city website: www.somervillema.gov. All applications require current dig safe numbers. An explanation of the application and sketch shall be made either in the space provided on the application form or a separate sheet in duplicate which the Applicant shall attach to the application. Such diagrams or sketches shall show the location of the work to be done in relation to the outstanding features of the road, such as property lines, intersections, pavement lines, sidewalks, trees, drainage structures, utility poles by number, and the character and extent of the work.

The Applicant will be required to disclose the methods and materials proposed to be used. In the event the Permittee discovers that additional work or repairs not designated in the original permit must be done in the same location, the Permittee must make application to the City of Somerville for a permit to authorize the additional work in the same manner as the first permit. When the work proposed includes excavating in the public way the sketch will show the proposed cut lines, including dimensions and the relation to existing buildings or other features. If directed by the IAM-Engineering Division, the application will include sieve analysis and proctor of proposed backfill material meeting State Spec. M1.03.0 Type b.

No permit shall be issued without a street address for the location of work or a separate description of the limits of work.

Plans and Specifications

When applications are made for permits involving work of major scope, plans certified by a Professional Engineer and specifications must be submitted in duplicate with the application form. They should be detailed so that the exact location of the various parts of the work, the risk of injury to road users, and the probability of damage to trees, highway structures, and private property can be ascertained.

Health & Safety Plan

All projects require a Health & Safety Plan following City, State and Federal guidelines. The Health & Safety Plan shall include occupational safety and communicable diseases, or as directed by the Engineering Division during permit review.

Rejection of Application

When it appears that the work called for in an application would not conform to City regulations, or cause substantial or needless damage to a highway, or create excessive disturbances to traffic, or exceptionally dangerous conditions not commensurate with the benefits to the Applicant, the request for permit will be denied. The IAM Director, or his/her designee, may refuse to issue a permit to any person, company, or utility when, in his opinion, work performed under a permit theretofore issued to the Applicant has not been properly executed, or when said Applicant has failed to reimburse the City for recoverable charges billed under terms governing the previous permit.

D. BOND REQUIREMENTS

Prior to the issuance of a permit, the Applicant shall deposit with the City a Bond in an amount of \$5,000.00. The bond must be specific in naming the City of Somerville as the bond holder (“obligee”) and must be specific as to the stated purpose of the bond.

E. INSURANCE REQUIREMENTS

Prior to the issuance of the permit, an Applicant for a permit to work within City roadways or lands shall furnish to the City, certificates of minimum insurance including, automobile, property damage liability, bodily injury liability, and workmen's compensation insurance in the amounts determined by the DPW Commissioner. Insurance coverage shall be reviewed and updated periodically. These

General Liability:

| | | |
|--------------------------------|-------------------|-------------|
| Includes: | Each Occurrence - | \$1,000,000 |
| Comprehensive Form | Aggregate - | \$2,000,000 |
| Premises/Operations | | |
| Underground Explosion Collapse | | |
| Hazard | | |
| Products/Completed Operations | | |
| Independent Contractors | | |
| Broad From Property Damage | | |
| Personal Injury | | |

Automobile Liability:

| | | |
|--------------------|-----------------|-------------|
| Includes: | Bodily Injury & | \$1,000,000 |
| All Owned Vehicles | Property Damage | |
| Hired Vehicles | Combined | |
| Non-owned Vehicles | | |

Workers Compensation & Employers Liability:

| | | |
|-------------------------|--------------------------|-----------|
| As required by State of | Each Accident: \$100,000 | |
| Massachusetts | Bodily Injury by | \$500,000 |
| | Disease (Policy Limit) | |
| | Bodily Injury by | \$100,000 |
| | Disease (Each Employee) | |

certificates shall contain a provision that the insurance company will notify the certificate holder, by registered/certified mail, at least 30 days in advance of any cancellation or material change. The City of Somerville shall be listed as a Certificate Holder on the certificate.

F. FEES

The Department of Infrastructure and Asset Management shall levy charges and fees as determined by the IAM Director. (SEE APPENDIX 2 FOR FEE SCHEDULE)

G. ISSUANCE OF PERMIT

Permit shall be issued:

- a. After completion of all aspects of the application for permit, including a TMP, approved by the City Engineering Division.

- b. Upon receipt of a Bond and issuance in the correct amount.
- c. Payment of fees as required by the IAM Director.

*A permit form must be signed by the IAM Director, or his designee, before it becomes valid. Once all submitted documentation is approved, including proposed work, TMP and coordination with other projects, permits will be issued by the IAM – Engineering Division, within three (3) full working days. The Permittee is forbidden to commence work until the above mentioned items have been provided to the City and the Permittee has notified the IAM - Engineering Division at least twenty-four (24) hours in advance of the exact date and hour proposed work is to begin. **If applicable, “No Parking” signs must be posted 48 hours prior to commencing work.***

H. EMERGENCY REPAIRS

In the event of an emergency requiring work in or under a municipal street, sidewalk, public right of way or public easement, the Applicant shall notify the IAM-Engineering Division at (617) 625-6600 x5400 and apply for all applicable permits required by the City of Somerville. Applicant or property owner shall request emergency treatment of their application by identifying it as an “Emergency” in writing and provide documentation of the emergency conditions. The project will be prioritized accordingly once the Engineering Director, W&S Director and/or ISD Director agree that it is an emergency. Work shall not commence until approval has been given to the applicant in writing by IAM-Engineering.

It is the City’s goal to permit emergency repairs within four business days or less. Provided that applicant promptly provides all information required for a complete application and promptly provides additionally information as requested by the City.

I. REVOCATION OF PERMITS

Any permit issued by the City of Somerville is revocable immediately upon written notification to the Permittee.

J. DISPLAY OF PERMITS

A copy of the permit shall be at the job site at all times for inspection by local police, Public Works

personnel, and other interested persons. To be valid, the permit must show the effective and expiration dates and must be signed by the IAM Director or his/her designee. This regulation will also apply to public utilities and their subcontractors.

K. EXTENSION OF TIME

All required work shall be completed in a manner satisfactory to the City before the expiration date shown on the permit except in cases where permanent repairs, such as loaming and seeding must be made at a future date. Otherwise, the permit holder shall request the City to allow him an extension of time. Extension of time may be granted upon written request by the Permittee stating the reason(s) for the request, and any applicable fees being paid to the Engineering Division.

L. INDEMNIFICATION

The Applicant agrees as a condition governing the issuance of a permit, that they will hold harmless the City of Somerville, the IAM Director, and his/her agent and employees from any and all claims and actions whatsoever arising from the issuance of said permit.

M. CLEARANCE FOR VITAL STRUCTURES

The excavation work shall be performed and conducted so as not to interfere with access to fire hydrants, fire stations, fire escapes, water gates, underground vaults, valve housing structures, traffic signal cables and loops, and all other vital equipment as designated by the City.

N. PROTECTIVE MEASURES & TRAFFIC CONTROL

Safety to Traffic

It shall be the duty of the Permittee to make certain that the security of the traveling public is safeguarded and its rights are not unreasonably curtailed. Unless specifically indicated in the permit or authorized by the City of Somerville Traffic Engineer, the traveled path shall not be obstructed. Storage of material shall not be allowed within the traveled way. The portions of the highway, which are excavated or are otherwise unsafe for public travel, shall be adequately protected at all times to avoid the possibility of accidents. Such areas shall be marked at night by barricades or traffic barrels with flasher beacons, or other warning devices approved by the City of Somerville Traffic Engineer. When portions of the traveled way are made dangerous for the movement of vehicles or pedestrians, a

sufficient number of uniformed police officers shall be employed by the Permittee to direct the traffic safely through the areas. The work shall, if possible, be planned to avoid such conditions.

Detours

When, in the opinion of the City of Somerville Traffic Engineer, a City roadway may be obstructed by the applicant's proposed operations to such an extent as to unduly restrict vehicular traffic or make hazardous its use, a parallel City road bypass may be designated. All expense incurred by the Permittee as a result of this bypass establishment, use, and restoration of said detour shall be the entire responsibility of the Permittee. If required, the Permittee shall supply and maintain such signs at his expense as may be necessary to clearly outline the detour. Preliminary to detouring of traffic over a road bypass, an inspection may be required by the Permittee and a representative of the City to determine the adequacy of the signs and the structural condition of the road involved. A second inspection shall be made by the same person when the detour is terminated so that there may be an agreement as to the extent of repairs, if any, to be made by the Permittee to restore the conditions equal or better to those existing prior to the establishment of the detour.

Protective Measures and Routing of Traffic

The Permittee shall, in general, maintain safe crossing for two (2) lanes of vehicular traffic at all street intersections where possible, and safe crossings for pedestrians at intervals of not more than two hundred (200) feet. Adequate crossings shall be maintained for vehicles and pedestrians when an excavation is made across any public street, alley or sidewalk. When an excavation on any major or minor arterial takes up more than one-third (1/3) of the roadway, and is to remain open overnight, steel bridging of sufficient strength will be required to maintain a normal traffic flow.

The Permittee shall take appropriate measure to assure that during the performance of the excavation work, traffic conditions are as near normal as possible and shall be maintained at all times so as to minimize inconvenience to the occupants of the adjoining properties and to the general public. When traffic conditions permit, the Traffic Engineer, IAM Director, or his/her designated representative, may permit the closing of streets and alleys to traffic for a period of time prescribed by him/her. The written approval of the IAM Director of the City may require that the Permittee give notification to various public agencies and to the general public. In such cases, such written approval shall not be valid until such notice is given. In cases of an emergency on week nights, weekends, or holidays, the facility owner having such emergency shall contact the Police and Fire Departments by phone before

closing a street to traffic. Warning signs shall be placed far enough in advance of the construction operation to alert traffic within a public street. Cones or other approved devices shall be placed to channel traffic in accordance with the MUTCD.

Temporary Steel Plating

A contractor may temporarily place a structural steel plate(s) over an open trench **with the approval of the City of Somerville IAM's representative**. Any steel plates must meet ASTM A 36 steel (minimum) with a thickness sufficient for supporting traffic load. Steel plates must completely cover the open trench and have a minimum overlap, on each side, of four (4) feet for the entire length of the trench. The contractor shall also make all efforts to prevent any lateral movement of plate(s) placed by the contractor.

The permitted contractor is responsible for any plate movements. The Permittee will be charged if the City of Somerville resets any moved or out of position plates. The Permittee is responsible for insuring that excessive noise is not caused by traffic traveling over the steel plate(s). Noise suppression devices may be used to reduce the noise created by plate vibrations. An asphalt based sound damper (**Soundamp E**) is available from SOUND SEAL. Any location requiring a steel roadway plate for more than three (3) days will require the top of the plate to sit flush with the roadway. Steel plates, in general, will not be allowed if winter weather is expected. In the event that placement of the steel plate(s) is unavoidable, the contractor will recess the plates, place warning devices on the plate(s) and notify the IAM Engineering Division of the plate location. **Without express approval of the Engineering Division, plates are not permitted when winter weather is expected.**

O. NOTIFICATION TO PUBLIC UTILITY COMPANIES

The Applicant shall, in accordance with General Laws of the Commonwealth of Massachusetts currently in effect, give notice to public utility companies before making excavation in the public way. See Reference 2, MGL Chapter 82, Sections 40A – 40E See Reference 3, MGL Chapter 83, Section 8

P. RELOCATION AND PROTECTION OF UTILITIES

The Permittee shall not interfere with any existing facility without the written consent of the City and the owner of the facility. If it becomes necessary to relocate an existing facility, this shall be done by

ts owner. No facility owned by the City shall be moved to accommodate the Permittee, unless the cost of such work is borne entirely by the Permittee. The cost of moving privately owned facilities shall be similarly borne by the Permittee unless it makes other arrangements with the person owning the facility. The Permittee shall support and protect to the satisfaction of the owner of the facility, all pipes, conduits, poles, wires, or other apparatus, which may in any way be affected by the excavation work. The Permittee shall secure approval of the method of support and protection from the owner of the facility. In case any of said pipes, conduits, poles, wires, or apparatus should be damaged, and for this purpose pipe coating or other encasement or devices are to be considered as part of a substructure, the Permittee shall promptly notify the owner thereof. All damaged facilities shall be repaired by the agency or person owning them and the expense of such repairs shall be charged to the Permittee.

It is the intent of this paragraph that the Permittee shall assume all liability or damage to facilities and injury to persons. The only exception will be such instances where damage is exclusively due to the negligence of the owning company. The City shall not be made a party to any action because of this paragraph. The Permittee shall inform himself as to the existence and location of all underground facilities and protect the same against damages.

Q. PROTECTION OF PUBLIC PROPERTY

The Permittee shall not remove, even temporarily, any trees, shrubs, traffic signs, signals, loops or survey bounds which exist in the street area without first obtaining the consent of the appropriate City Department or City Official having control of such property. In the event of damage, the City shall be compensated and/or damage repaired in a manner acceptable to the governing department.

R. PROTECTION OF ABUTTERS & ADJOINING PROPERTY

The Applicant shall maintain all gutters free and unobstructed for the full depth of the adjacent curb. The Applicant shall make provisions for all surface water, muck, silt; residue or other run-off pumped or removed from excavations and shall be responsible for any damages. Dewatering into a catch basin will not be allowed without approval from the IAM Director or his/her agent. Silt sacks shall be installed in every catch basin if work may cause dirt/debris to enter the basin.

S. CARE OF EXCAVATION MATERIAL

All material excavated from trenches, and piles adjacent to the trench or in any street, shall be piled and maintained in such manner as not to endanger pedestrians, or users of the street, and so that as little inconvenience as possible is caused to those using the street adjoining properties. Whenever necessary, in order to expedite the flow of traffic or to abate the dirt or dust nuisance, toe boards or bins may be required by the City to prevent the spreading of dirt into traffic lanes.

Where the confines of the area being excavated are too narrow to permit the piling of excavated material beside the trench, the City shall have the authority to require that the Permittee haul the excavated material to a storage site and then re-haul it to the trench site at the time of backfilling. It shall be the Permittee's responsibility to secure the necessary permission and make all necessary arrangements for all required storage and disposal sites.

T. RODENT CONTROL

Through the Street Opening Permit process, the IAM – Engineering Division will require that rodent control be in place under the following conditions:

- When a water, sewer or drainage improvement project is being completed and work is anticipated to exceed 500 linear feet along a City road, this office will enforce the Rodent Control Specifications found in Appendix 3.

However,

- Streetscape work and work that requires excavation less than 3-feet will not trigger a requirement for baiting.

(SEE APPENDIX 3 for complete City of Somerville - Rodent Control Specification)

U. CUTTING THROUGH PAVEMENT

a. IN STREETS:

- 1 Where existing bituminous concrete pavement is to be removed to allow for excavation, the pavement shall be pre-cut in a neat, clean straight line with a pavement breaker or saw to confine pavement damage to the limits of the trench. The minimum width of any excavation shall be 24 inches. Pavement edges shall be trimmed to a vertical face and neatly aligned parallel and perpendicular to the

centerline of the trench or as specified by the IAM -Engineering Division.

- 2 Pulverization of a trench will be considered an acceptable procedure provided that the trench is cut in a neat straight line with a pavement breaker or saw prior to permanent restoration.
- 3 The City may prohibit heavy-duty pavement breakers when their use endangers existing substructures or other property.
- 4 Unstable pavement shall be removed over cave-ins and breaks and the subgrade shall be treated as the main trench.
- 5 The Permittee shall not be required to pay for the repair of any pavement damage existing prior to the excavation unless the Permittee's cuts results in small floating sections that may be unstable. If this occurs, the permittee shall remove the unstable portion and the area shall be treated as part of the excavation.
- 6 The maximum length to open trench permissible, at any time, shall be two hundred (200) feet. No greater length shall be opened for pavement removal, excavation, construction, backfilling, patching or any other operation without written permission of the City.
- 7 Excavation should be a minimum of twenty-four (24) inches from the face of the curb. If the excavation is less than five (5) feet from the face of the curb, then the repair must go to the curb.

b. IN SIDEWALKS:

- 1 All parts of **Section U, a. IN STREETS** shall apply to sidewalk excavation.

V. BACKFILLING OF EXCAVATION

1. Backfill material within the streets right of way shall be replacement gravel and comply with MHD Processed Gravel Specification M1.03.0, Type b, with no stones larger than three (3) inches in diameter. All excavated material, except as directed by the IAM - Engineering Division, shall be removed from the site and disposed of at no additional cost to the City.
Adequate moisture content in a backfill material is essential to achieve effective compaction. It will be the Permittee's responsibility to adjust the moisture content of soil in the field as necessary to achieve the specified compaction.
2. Backfill materials shall be considered unsuitable when containing at least one of the following properties:

- a. Material with a maximum unit dry weight per cubic foot less than 90 lbs. as determined by ASTM D698;
 - b. Material containing visible organic matter, topsoil, organic silt, peat, construction debris roots or stumps;
 - c. Material that has a liquid limit greater than 55;
 - d. If required, material designated in the field by the IAM - Engineering Division.
- 3 Prior to beginning backfill operations, the Permittee may be required to contact the IAM - Engineering Division to obtain a soil sample. The soil sample will then be forwarded to an approved material testing agency to insure its compliance with the project's specifications. A maximum laboratory dry density of the soil will be determined in accordance with ASTM D698. It will benefit the Permittee to provide a soil sample and testing results prior to the beginning of the project. This will allow field density test values to be calculated as the excavation is being backfilled and allow for additional passes with compaction equipment, if necessary. It will also be the responsibility of the Permittee to notify the IAM - Engineering Division if any change in soil characteristics occurs.
- 4 Approved backfill material shall be placed in lifts not to exceed six (6) to eight (8) inches; each lift must be compacted by mechanical or pneumatic compactors to at least ninety-five percent (95%) of the soil's maximum laboratory dry density.
- 5 An approved material testing agency or certified IAM - Engineering Division representative will then perform field density testing. Density testing will be performed at intervals of one (1) test per one hundred (100) linear feet of the compacted lift. In the event that the project is of a short duration or begins prior to obtaining the soil's maximum laboratory dry density (which is necessary in determining field density test results), the Permittee shall assume full responsibility for re-excavating and re-compacting areas of failed field density tests.
- 6 Due to the hazardous nature of performing field density testing in deep excavations, the Permittee shall be responsible for establishing a method of compaction using mechanical or pneumatic compactors that assures each lift is compacted to at least ninety-five percent (95%) of the soil's maximum laboratory dry density.

- 7 As the excavation is brought to grade and field density tests are taken, the project's Engineer, along with the Permittee, shall establish a sufficient compaction method necessary to achieve at least ninety-five percent (95%) of the material's maximum laboratory dry density based on the type of compaction equipment, number of passes and existing soil type and moisture content.

BUCKET WHACKING AND WATER JETTING WILL NOT BE PERMITTED.

W. EXCAVATING AND BACKFILLING TRENCHES IN NEW OR REPAVED STREETS LESS THAN FIVE (5) YEARS OLD

- 1 All applicable provisions of Section T. (CUTTING THROUGH PAVEMENT) shall apply to this Section.
- 2 When directed by the IAM – Engineering Division, all material excavated shall be removed from the project site. No material shall be placed on the roadway. All excavated material shall be loaded directly into a dump truck for disposal off site.
- 3 Upon completion of water, sewer and/or utility work, a one (1) foot envelope of approved pipe bedding material shall be placed over installed lines. The trench shall then be backfilled using Excavatable Controlled Density Fill (CDF), Type 2E or ¾-inch crushed stone (as directed). For rigid base roads, the trench shall be filled with CDF or ¾-inch crushed stone to the bottom of the rigid base. Prior to backfilling with CDF, the Permittee may be required to notify the for the purpose of obtaining a sample for compressive strength testing.
- 4 All applicable provisions of Section Y., c and d – Temporary and Permanent Surface Repair – shall apply to this Section including an infra-red treatment of the permanent roadway patch.

X. RESTORATION OF PAVEMENT MARKINGS

All permanent pavement markings (crosswalks, traffic center lines, etc) that are removed or damaged during construction shall be repainted by or under the direction of the City of Somerville IAM– Engineering Division at the expense of the Applicant.

Y. STREET, SIDEWALK, CURB AND TRENCH REPAIRS

a. SCOPE OF WORK

The work under this section shall include furnishing and installing hot plant mixed bituminous concrete as temporary or permanent resurfacing on the complete width of the trench; furnishing and installing cement concrete where excavated in streets and sidewalks; and the removing and resetting of granite curb. This work shall be as specified herein, as shown on the plans or as directed by the IAM - Engineering Division.

b. MATERIALS

All bituminous concrete shall conform to the requirements as set forth in the most recent edition and amendments thereto of the Standard Specifications for Highways and Bridges, Massachusetts Highway Department, Commonwealth of Massachusetts.

- 1 Bituminous concrete shall conform to Section M3.11, Class I, Type I-1 of the above mentioned specifications.
- 2 Cement concrete sidewalks shall conform to Section M4.02 (air-entrained 4000 psi, 3/4" aggregate) of the above mentioned specifications.

c. TEMPORARY SURFACE REPAIRS

- 1 As soon as the excavation has been backfilled and compacted, a temporary repair shall be made. Temporary paving shall be hot laid binder course conforming to the above mentioned specifications and shall be placed in two, two (2) inch courses. This course shall be compacted to match existing pavement so that it is hard enough and smooth enough to be safe for pedestrian travel over it. Likewise, it must be hard enough and smooth enough for vehicular traffic to pass safely over it at the legal rate of speed. The contractor shall maintain the temporary paving until the permanent paving is placed.
- 2 In the event there is unacceptable maintenance of temporary repairs, the Permittee will be notified of those situations. Upon notification, the Permittee will make the required improvements within twenty-four (24) hours.

- 3 In emergency situations, the City will make immediate repairs and the Permittee will be billed directly. All temporary material shall conform closely to the level of the adjoining paved surface and shall be compacted so that it is hard enough and smooth enough to be safe for pedestrian and vehicular travel.
- 4 The Permittee shall maintain the temporary paving for a period of not more than ninety (90) days after backfilling is completed or as directed by the Engineering Division or conform with the schedule detailed in the next Section. The temporary patch shall be maintained and kept safe for pedestrian and vehicular traffic until the permanent restoration is made.

d. PERMANENT SURFACE REPAIR

1. Permanent repairs shall be completed within a period of not more than ninety (90) days or in accordance with the following schedule:

SCHEDULE OF PERMANENT PATCHING

| <u>TEMPORARY PATCH PLACED</u> | <u>PERMANENT PATCH PLACED</u> |
|--------------------------------------|--------------------------------------|
| April 1 – April 30 | August 1 |
| May 1 – May 31 | September 1 |
| June 1 – June 30 | October 1 |
| July 1 – July 31 | November 1 |
| August 1 – August 31 | November 15 |
| September 1 – September 30 | November 15 |
| October 1 – October 15 | November 15 |
| October 15 – December 30 | May 15; following year |
| December 30 – April 1 | May 15 |

The guarantee period shall be for two (2) years following the placement of the permanent patch. During the guarantee period the Permittee shall be responsible for the restoration, repair, and maintenance of his work.

- 2 The permanent patch shall be extended one (1) foot on all sides of the temporary patch area. The pavement shall be cut in a neat, straight line with a pavement saw only. The cut shall be square or

rectangular with edges parallel and perpendicular to the trench or as directed by the IAM – Engineering Division. Cuts shall be straight and vertical. The permanent patch of bituminous concrete walks shall be the full width of the sidewalk with end cuts straight and perpendicular to the street line.

3. A tack coat shall be applied to the vertical faces of the existing pavement before placing permanent patch. A permanent patch material shall be applied in two (2) courses in accordance with the following thickness chart:

BITUMINOUS CONCRETE
PAVEMENT COURSE THICKNESS CHART

| | <u>Binder Course</u> | <u>Top Course</u> |
|--------------------------|--|--------------------------|
| Roadway up to 12% grade | 2-1/2” | 2” |
| Roadway 12% to 16% grade | 3” | 2” |
| Roadway 16% and over | 3-1/2” | 2” |
| Rigid Base Roadway | Match thickness of rigid base to a maximum of 6 1/2” | 2” |
| Driveway | 4” | 2” |
| Sidewalk | 2” | 2” |

(NOTE: Thickness depths are measured after compaction)

4. The binder will be placed in courses NOT exceeding 2-1/2 inches. Multiple binder courses will be laid if the existing thickness conditions warrant.
5. When two (2) or more openings are made in sequence with fifteen (15) feet or less between the adjacent openings, the Permittee shall neatly cut out and remove the area of pavement between these adjacent openings and shall patch the entire area as one trench.
6. The Permittee shall be required to correct any trench settlements and/or faulty pavement patches for a period of two (2) years after the permanent patch is placed, at the direction of the IAM - Engineering

Division. In the event of a failed permanent patch, the Permittee shall be responsible for fully removing the patch, regrading the sub-grade and re-cutting the trench edges (if necessary) prior to installing a new permanent patch. Spot repairs of permanent patches will not be acceptable.

7. If, during construction, break backs occur, the bituminous concrete shall be cut back to a sufficient point where the edges are smooth and straight. Where, in the opinion of the IAM - Engineering Division, the break backs are extensive, the ENTIRE TRENCH LENGTH shall be evenly cut back so to insure two parallel edges.
8. Granite curb requiring resetting shall be excavated so that the present curb can be removed without damage. When resetting, the length of any section of curb or edging shall be altered by cutting in order to fit closures as necessary.
9. Settlement of curbing shall be repaired by the contractor at no cost to the City.
10. Where cement concrete or paving block is encountered in roadways (either as wearing surface or as base for bituminous concrete), it shall be replaced with binder at a thickness equal to the existing rigid road base to a maximum depth of eight (8) inches. When replaced as the base paving, the binder shall be so placed as to allow for the subsequent permanent paving courses to be placed over it.
11. Where cement concrete is encountered in sidewalks, it shall be replaced at a minimum thickness of four (4) inches or six (6) inches in driveways and wheelchair ramps. The concrete shall be poured in forms that are smooth, free of warp, of sufficient strength to resist springing out of shape, and satisfactory to the City of Somerville's IAM - Engineering Division. All sidewalks shall be poured on an eight (8) inch gravel base. All cuts in concrete sidewalks shall be from the nearest joint or pour line for the full width of the sidewalk. The finished surface shall be brushed by drawing a soft-bristled push broom with a long handle over the surface of the concrete, perpendicular to pedestrian travel, to produce a non-slip surface. Joints shall be scored at intervals at the discretion of the City of Somerville's IAM - Engineering Division. For normal sidewalk work, these joints shall be installed at intervals equal to the width of the sidewalk but not to exceed five (5) feet; expansion joints every 30 linear feet. A 2-1/2" edge finish shall be required on each side of the joint. The broom finish shall

extend from the curbing to the back of sidewalk. The finished concrete surface shall be adequately protected for curing and defacement by a method approved by a City of Somerville IAM - Engineering Division.

12. Where bituminous concrete is encountered in sidewalks, it shall be replaced at a minimum compacted thickness of two (2) inch of $\frac{3}{4}$ " binder and two (2) inch of top course (see page 16). Satisfactory forms shall be installed to assist in securing proper alignment and adequate compaction of both courses where an approved mechanical spreader is not used. All cuts for permanent patches shall be perpendicular to the street line and extend full width of the sidewalk. The minimum width for a permanent patch in a bituminous sidewalk shall be four (4) feet.
13. Whenever sidewalks at crosswalks are disturbed for necessary excavations, those sidewalks and curbs shall be reinstalled per current ADA/AAB Regulations. Perpendicular pedestrian ramps (and reciprocals) are required to be installed to complement existing or newly constructed crosswalks. Pedestrian ramps must be constructed where applicable, in accordance with Federal Law.
14. Grading and drainage shall be designed to prevent pooling of water, accumulation of ice, or flow of water across the base of the curb cut.
15. The contractor is required to have metal plates to cover the excavation if needed.

e. SPECIAL CONDITIONS FOR PERMANENT RESTORATION FOR LONG TRENCHES OVER 100 FEET

1. When trenches are one hundred (100) feet or more in length, permanent repair requirements are as follows:
 - The road pavement shall be precut in a neat straight line with all corners squarely cut. Also, the width of the excavation shall not be less than 24 inches. The maximum length of open trench shall be no greater than 200 feet at any time.
 - The contractor is required to have metal plates to cover the excavation if needed. Two-way traffic must be maintained at all times.
 - The excavation must be backfilled with suitable material and mechanically compacted in 8 inch to 10 inch lifts.

- The 4 inch temporary hot mix asphalt (binder) is required, placed in 2 inch lifts. The temporary patch must be periodically checked and maintained.
 - The roadway shall be cleared and swept of all debris at the end of each day.
- 2 All sidewalks excavated must be replaced entirely in kind, in accordance with City Standards and Specifications and may require adjustment of curbing or the installation of asphalt berm. Pedestrian ramps must be installed where applicable, in accordance with State Law.

3 Ninety (90) days after work is completed the trench shall be rebuilt by one of two methods:

Method #1 - The trench shall be saw cut in a straight line a minimum of 12” beyond each side of the trench, a minimum width of 8 feet. The temporary patch and saw cut area shall be removed and replaced with 4 inches of hot mix asphalt pavement, 2-1/2 inches of binder course and 1-1/2 inches of top course. If any side of the trench is within 5 feet of the curb or berm the cut shall extend to the granite curbing or 1 foot out from the berm. Trench ends shall be straight and square. The edges of the trench shall be thoroughly cleaned and shall be completely coated with an approved emulsion.

Method #2 - If, in the opinion of the IAM - Engineering Division, the 4 inch hot mix temporary patch has remained structurally sound then an area within the limits prescribed in Method #1 shall be milled to a depth of 2 inches. A tack coat or CRS-1 of RG-1 asphalt emulsion shall be applied and 2 inches hot mix top course shall be laid and rolled to meet pre-existing grades and original profile of street.

4. Permanent paving shall be applied with a self-propelled mechanical spreader and rolled with a power driven steel wheeled roller. A minimum width of repair will be 8 feet. After completion of the permanent patch the permittee will file Certificate of Pavement Restoration form attesting that his pavement has been completed in full compliance with these regulations.

Z. TREE REPLACEMENT

- 1 No trees shall be cut or removed under this Permit.
- 2 The Contractor shall obtain a tree removal permit and/or written permission from the Tree Warden as required by ordinance if it becomes necessary to remove any tree. Replacement trees must be obtained from an established nursery in accordance with “USA Standard for Nursery Stock”. The

trees will be replaced in size and specie as directed by said Tree Warden.

AA. PROMPT COMPLETION OF WORK

After an excavation has commenced, the Permittee shall prosecute with diligence and expedition all excavation work covered by the excavation permit and shall promptly complete such work and as specified herein. The Permittee shall perform such work so as not to obstruct, impede, or create a safety hazard to either pedestrian or vehicular traffic.

BB. NOISE, DUST, DEBRIS

Each Permittee shall conduct and carry out excavation work in such manner as to avoid unnecessary inconvenience and annoyance to the general public and occupants of the neighboring property. The Permittee shall take appropriate measure to reduce, to the fullest extent practicable, noise, dust, and unsightly debris between the hours of 7:00 p.m. and 7:00

a.m. He shall not use, except with the express written permission of the City, or in case of an emergency as herein otherwise provided, any tool, appliance, or equipment producing noise of sufficient volume to disturb the sleep of the neighboring property.

CC. PRESERVATION OF MONUMENTS Any monument set for the purpose of locating or preserving the lines of any street or property subdivision, or a precise survey reference point, or a permanent survey bench mark within the City, shall not be removed or disturbed without first obtaining permission, in writing, from the City to do so. If the work results in a monument being moved, shifted or broken it must be reset as located by a Registered Land Surveyor at the permittee's expense (see Commonwealth of Mass. Standard Spec. for Highways & Bounds, pg. 180, Sect 710.61 Bounds Removed & Reset). Permission to remove or disturb such monuments, reference points, or bench marks shall be granted only when no alternate route for the proposed substructure or conduit is available. If the City is satisfied that no alternate route is available, permission shall be granted only upon condition, by agreement in writing, that the person or utility applying for such permission shall pay all expenses incidental to the proper replacement of the monument by the City.

DD. GRANITE CURB

No person or utility shall remove, damage, haul away, or cause misalignment of any granite curbing, including radius curb and catch basin stones, or cobblestones, for any reason whatsoever without first

receiving permit from the IAM Director. All granite curb removed must be returned to the Department of Public Works to a location to be identified by the Engineering Division.

EE. BITUMINOUS CURB

Any person or utility damaging bituminous concrete curbing during the course of excavation, or for any other reason, shall replace at their own expense the bituminous concrete curbing.

FF. EXCAVATION DURING WINTER

No person or utility shall be granted a permit to excavate or open any street or sidewalk from November 15th of each year to April 1st of the next year unless an emergency or special condition exists and permission is obtained from the IAM Director.

Any person or utility wishing to obtain an excavation permit between the aforementioned dates shall first explain fully, in writing, the nature of the emergency situation to the City and proceed with the procedures defined in Section H Emergency Repairs.

GG. INSPECTIONS

The City shall make such inspections as are reasonably necessary in the enforcement of these regulations. The City shall have the authority to promulgate and cause to be enforced such rules and regulations as may be reasonably necessary.

HH. AS-BUILTS

Upon completion of work, the Applicant may be required submit a complete “as-built” to the IAM–Engineering Division. The as-built plan must include, when applicable:

- 1 Streets and Street Names;
- 2 Edge of pavement;
- 3 Structures (SMH’s, DMH’s, CB’s, etc.) with rim and invert elevations and pipe size and materials;
- 4 Sewer, drain and combined mains shall be shown indicating pipe size, slope and material;
- 5 Swing ties to all service laterals and depth to top of pipe shall be indicated;
- 6 Location of sewer clean-outs with swing ties shall be shown;
- 7 The horizontal location of all utility lines, SMH’s, DMH’s & CB’s from fixed structures (building corner, utility pole, etc) shall be clearly indicated.

At a minimum, applicants are required to provide a record of completed work for IAM records.

Future permits will not be granted until all completed as-builts have been received and accepted by the Somerville IAM – Engineering Division.

II. PENALTY

Any person, firm, utility or corporation who violates any of the regulations of this manual shall be guilty of a misdemeanor and upon conviction thereof, shall be fined not less than \$200.00. Each day such violation continues shall constitute a separate offense. If the work, or any part thereof, mentioned in the preceding sections shall be unskillfully or improperly done, the City shall cause the same to be skillfully and properly done and shall keep an account of the expense thereof; and, in such case, such person or utility shall pay the City an amount equal to the whole of said expense incurred by said City with an additional amount of 50% to cover indirect costs. Thereafter, upon completion of the work and the determination of the costs thereof, the City shall issue no further permits to any person or utility until it shall receive payment of said costs.

Any person, firm, utility or corporation who continues to violate any regulation of this manual more than twice in any 24 month period shall receive no further permits until such time as the City is satisfied that the person, firm, utility or corporation shall comply with the terms of this manual.

APPENDIX 1

MONITORING WELLS

Monitoring wells located in the city right of ways:

1. Shall have an access cover mark "Monitoring Wells."
2. Shall be in sidewalks unless justification is provided for locating a well within a roadway.
3. Said cover shall be capable of handling H-20 traffic loading.
4. Entire installation shall be maintained for the life of the well.
5. When the well is no longer needed, the well shall be filled to the depth of pavement with Controlled Density Fill (CDF) and permanently paved.

APPENDIX 2



City of Somerville Department of Public Works City of Somerville Department of Public Works

Fee Schedule

| | |
|--|---|
| Street Opening Permit | \$200.00/ week Per Each Street Utility Opening |
| Sidewalk Opening Permit | \$200.00/ week Per Each Street Utility Opening |
| Street/Sidewalk Occupancy ("Obstruction") | \$200.00/ week Per Each Street Utility Opening |
| Crane Fee Rate | \$150/Week |

- A \$200.00 non-refundable application fee is required for each Street Opening Permit, per week (5 business days)
- A \$150.00 MA DOS Trench Permit fee as applicable per MGL c.82A ("Jackie's Law"), 520 CMR 14.00 (>3-ft. in depth).
- Permanent Street & Sidewalk restorations are required to satisfy the current City of Somerville standard specifications, as indicated on each individual Street Opening Permit.
- A \$5,000.00 "Street Performance Bond" is required for each Street Opening and Sidewalk Opening Permit granted.
- The contractor must furnish the City with a "Certificate of General Liability Insurance" in the minimum amount of \$1,000,000.00. See Page 4 of the Permit Manual for all minimum limits



APPENDIX 3

RODENT CONTROL

Through the Street Opening Permit process, this office will require that rodent control be in place under the following conditions:

- When a water, sewer or drainage improvement project is being completed and work is anticipated to exceed 500 linear feet along a City road, this office will enforce the rodent control specifications sent to you this morning.
- Streetscape work and work that requires excavation less than 3-feet will not trigger a requirement for baiting.

Requirements:

1. So that rodents and pests do not disperse from or infest the project area, prior to demolition, excavation and/or site preparation the Contractor shall develop and implement an Integrated Pest Management (IPM) Plan. As part of this plan, the Contractor shall maintain open dialogue with the City, appropriate agencies and neighboring properties (i.e. within 200 feet of project limits). The Contractor shall obtain and maintain appropriate permit(s) from city or state agencies for pest control activities associated with the work granted under permit. The Contractor shall also obtain and maintain all right of entry permits required for the performance of this Work. This includes all utilities and private properties to which entrance is required.
2. Prior to commencing any baiting, the Contractor shall submit to the Engineer a written description of proposed pest control procedures, indicating materials, quantities, methods and schedule. For all proposed pesticides to be used, submit a copy of the pesticide's manufacturer's EPA-approved pesticide label with application directions. The Contractor shall provide Engineer with copies of pesticide applicator certifications, licenses and renewals.
3. Prior to construction and throughout the duration of this Contract, identify and document harborage and food sources available to rodents on the construction site and in observable bordering areas. This includes any littering or improper or insufficient use of trash receptacles in construction areas. It also includes any bordering areas with sanitation conditions or structural deficiencies that violate City or State sanitation codes.

APPENDIX 3

4. At intervals to be determined by the Engineer, the Contractor shall submit documentation of pest control activities and results. Submittals shall include data sheets with locations of sites treated, amounts and types of pesticide used, number and types of traps set, survey and inspection results, sanitation conditions, complaint calls investigated and any problems that may have occurred.
5. The Contractor and key personnel shall have experience with commercial and residential accounts and construction projects; have experience and technical training in vertebrate pest management and integrated pest management; have experience with various rodent control techniques, equipment, and strategies; have training and experience with insect control; and have knowledge of and experience with techniques to reduce non-target hazards.
6. The supervisor shall be licensed and certified by the Massachusetts Pesticide Bureau and certified in General Pest Control (category 41) and Vertebrate Pest Control (category 44). The supervisor shall have specific training and experience in vertebrate pest management, commercial rodent control, general pest control, and integrated pest management.
7. Applicators shall be licensed by the Massachusetts Pesticide Bureau and certified in General Pest Control (category 41). Applicators shall have specific training and experience in commercial rodent control and integrated pest management.
8. This work shall be performed in such a manner that toxicant and other control tools do not pose a hazard to persons, domestic animals or non-targeted wildlife.

REFERENCE 1

MGL Chapter 82A – Excavation and Trench Safety

Section 2 – Trench excavating permits; permits issued by board or officer; certificate of insurance; fees

Each city, town or public agency shall designate 1 board or officer to issue permits for the excavation of trenches on privately owned land and for the excavation of a public way of a city or town. The permits, when issued, shall include a summary of sections 40 to 40D, inclusive, of chapter 82 and a summary of regulations promulgated by the department of public safety relative to chapter 146. No person shall, except in an emergency, contract for the making of or make a trench, in any public way, public property, or privately owned land until a permit is obtained from the appropriately designated person within the city, town, or public agency that is authorized to issue the permit. The person shall notify the local permitting authority of the exact location of the trench. A person making application for a trench excavation permit shall produce a certificate of insurance with general liability coverage of \$100,000 per person and \$300,000 per claim or provide evidence of self-insurance in equal amounts. The local permitting authority may charge a reasonable fee to cover the administrative costs of the trench excavation permitting process incurred by the municipality in connection with the review and processing of the permits; but, a gas company, as defined in section 1 of chapter 164, or any corporation that is subject to the provisions of chapter 165, 166 or 166A which has already paid a fee in order to attain a permit to excavate a public way of a city or town shall not be responsible for paying an additional fee for the same excavation.

REFERENCE 2

MGL Chapter 82 – The Laying Out, Alteration, Relocation and Discontinuance of Public Ways, and Specific Repairs Thereon

Section 40A: Excavations; Notice - No excavator installing a new facility or an addition to an existing facility or the relay or repair of an existing facility shall, except in an emergency, make an excavation, in any public or private way, any company right-of-way or easement or any public or privately owned land or way, unless at least 72 hours, exclusive of Saturdays, Sundays and legal holidays but not more than 30 days before the proposed excavation is to be made, such excavator has premarked not more than 500 feet of the proposed excavation and given an initial notice to the system. Such initial notice shall set forth a description of the excavation location in the manner as herein defined. In addition, such initial notice shall indicate whether any such excavation will involve blasting and, if so, the date and the location at which such blasting is to occur.

The notice requirements shall be waived in an emergency as defined herein; provided, however, that before such excavation begins or during a life-threatening emergency, notification shall be given to the system and the initial point of boring or excavation shall be premarked. The excavator shall ensure that the underground facilities of the utilities in the area of such excavation shall not be damaged or jeopardized.

In no event shall any excavation by blasting take place unless notice thereof, either in the initial notice or a subsequent notice accurately specifying the date and location of such blasting shall have been given and received at least 72 hours in advance, except in the case of an unanticipated obstruction requiring blasting when such notice shall be not less than four hours prior to such blasting. If any such notice cannot be given as aforesaid because of an emergency requiring blasting, it shall be given as soon as may be practicable but before any explosives are discharged.

REFERENCE 2

Section 40B: Designation of Location of Underground Utilities - Within 72 hours, exclusive of Saturdays, Sundays and legal holidays, from the time the initial notice is received by the system or at such time as the company and the excavator agree, such company shall respond to the initial notice or subsequent notice by designating the location of the underground facilities within 15 feet in any direction of the premarking so that the existing facilities are to be found within a safety zone. Such safety zone shall be so designated by the use of standard color-coded markings. The providing of such designation by the company shall constitute prima facie evidence of an exercise of reasonable precaution by the company as required by this section; provided, however, that in the event that the excavator has given notice as aforesaid at a location at which because of the length of excavation the company cannot reasonably designate the entire location of its facilities within such 72 hour period, then such excavator shall identify for the company that portion of the excavation which is to be first made and the company shall designate the location of its facilities in such portion within 72 hours and shall designate the location of its facilities in the remaining portion of the location within a reasonable time thereafter. When an emergency notification has been given to the system, the company shall make every attempt to designate its facilities as promptly as possible.

Section 40C: Excavator's Responsibility to Maintain Designation Markings; Damage Caused by Excavator - After a company has designated the location of its facilities at the location in accordance with section 40B, the excavator shall be responsible for maintaining the designation markings at such locations, unless such excavator requests remarking at the location due to the obliteration, destruction or other removal of such markings. The company shall then remark such location within 24 hours following receipt of such request.

When excavating in close proximity to the underground facilities of any company when such facilities are to be exposed, non-mechanical means shall be employed, as necessary, to avoid damage in locating such facility and any further

REFERENCE 2

excavation shall be performed employing reasonable precautions to avoid damage to any underground facilities including, but not limited to, any substantial weakening of structural or lateral support of such facilities, penetration or destruction of any pipe, main, wire or conduit or the protective coating thereof, or damage to any pipe, main, wire or conduit.

If any damage to such pipe, main, wire or conduit or its protective coating occurs, the company shall be notified immediately by the excavator responsible for causing such damage.

The making of an excavation without providing the notice required by section 40A with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit, or its protective coating, shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by the negligence of such person.

Section 40D: Local Laws Requiring Excavation Permits; Public Ways -

Nothing in this section shall affect or impair local ordinances or by-laws requiring a permit to be obtained before excavation in a public way or on private property; but notwithstanding any general or special law, ordinance or by-law to the contrary, to the extent that any permit issued under the provisions of the state building code or state fire code requires excavation by an excavator on a public way or on private property, the permit shall not be valid unless the excavator notifies the system as required pursuant to sections 40 and 40A, before the commencement of the excavation, and has complied with the permitting requirements of chapter 82A.

Section 40E: Violations of Secs. 40A to 40E; Punishment -

Any person or company found by the department of telecommunications and energy, after a hearing, to have violated any provision of sections 40A to 40E, inclusive, shall be

REFERENCE 2

fined \$1,000 for the first offense and not less than \$5,000 nor more than \$10,000 for any subsequent offense within 12 consecutive months as set forth by the rules of said department; provided, however, that nothing herein shall be construed to require forfeiture of any penal sum by a state or local government body for violation of section 40A or 40C; and provided, further, that nothing herein shall be construed to require the forfeiture of any penal sum by a residential property owner for the failure to premark for an excavation on such person's residential property.

REFERENCE 3

MGL Chapter 83 – Sewers and Drains

Section 8: Digging Up Public Ways; Permits - No person shall dig up or make an excavation in a public way for the laying, altering or repairing of a drain or sewer without obtaining a written permit from the board or officer having charge of the maintenance and repair of sewers in the town in which such way is situated. Notwithstanding any contrary provision of any local ordinance or by-law, no such permit shall, except in case of an emergency, be approved or issued by said board or officer until copies of the notices to public utility companies required by section forty of chapter eighty-two have been filed with said board or officer by the applicant for such permit. Whoever violates any provision of this section shall be punished by a fine of not more than fifty dollars for the first offense and not less than fifty dollars nor more than one hundred dollars for any subsequent offense.

Standards To Be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities

Section

- 1.0 Purpose and Scope
- 2.0 Definitions
- 3.0 Permit Requirements
- 4.0 Work Standards
- 5.0 Safety
- 6.0 Protection of Adjoining Facilities
- 7.0 Excavations
- 8.0 Backfill and Compaction
- 9.0 Pavement Restoration
- 10.0 Sidewalks and Driveways
- 11.0 Compliance with these Standards

1.0 Purpose and Scope

- 2.1** The purpose of these standards is to ensure that a Utility, after excavating in any municipal street, lane and highway ("public ways"), restores such street, lane and highway to the same condition in which they were found before the excavation.
- 2.2** Nothing in these standards may be construed to restrict the Constitutional or statutory authority of cities or towns ("Municipalities") with respect to public ways. Nothing in these standards is intended to prevent a utility and a municipality from mutually agreeing to exceptions to these standards.
- 2.3** Nothing in these standards is intended to be inconsistent with any ordinance or by-law and the constitution and laws of the Commonwealth.
- 2.4** Nothing in these standards is intended to create a contractor relationship between a Municipality and the Utilities regulated by the DTE.
- 2.5** Nothing in these standards is intended to be inconsistent with the Department's regulations concerning the Design, Construction, Operation, and Maintenance of Intrastate Pipelines Operating in Excess of 200 PSIG, 220 C.M.R. §§ 109.00 et seq.

Inasmuch as the cover and backfill requirements in these standards are more stringent than those included in 220 C. M.R. § 109.09, these standards shall apply. See 220 C.M.R. § 109.05(2).

- 2.6** The Utility is responsible for insuring compliance, for itself and its contractors, with these standards. However, Utility work may be inspected by the Municipality to assure that proper procedures are being followed. In the event a Utility fails to comply with these standards a Utility shall, at its own expense, correct such failures.
- 2.7** A Utility's performance in following these standards shall be considered by the Department when a Utility seeks recovery of costs related to these standards in a rate proceeding.

2.0 Definitions

AASHTO means The American Association of State Highway and Transportation Officials.

Clay means very finely textured soil which, when moist, forms a cast which can be handled freely without crumbling/breaking; that exhibits plasticity; and when dried, breaks into very hard lumps (i.e., high dry strength) and is difficult to pulverize into a soft, flour-like powder.

Cold Patch means a bituminous concrete made with slow curing asphalts and used primarily as a temporary patching material when hot mix plants are closed.

Compaction means compressing of suitable material and gravel that has been used to backfill an excavation by means of mechanical tamping to within 95% of maximum dry density as determined by the modified Proctor test in accordance with AASHTO T180.

Controlled Density Fill (CDF), meeting MHD Specification M4.08.0 Type 2E (flowable, excavatable), also called flowable fill means a mixture of portland cement, fly ash, sand and water. High air (25% plus) may be used instead of fly ash with an adjustment in sand content. CDF is hand-tool excavatable.

Department means the Department of Telecommunications and Energy.

Emergency Repair Work means street opening work which must be commenced immediately to correct a hazardous condition whose continuation would unreasonably risk injury, loss of life or property damage.

Gravel means coarse to very coarse-grained soil ranging from approximately 0.1 inch to 3.0 inches. Gravel exhibits no plasticity.

Infrared Process means a recycling procedure whereby an infrared heater plasticizes the surface of an asphalt pavement, preparatory to the introduction of additional compatible paving materials uniformly re-worked and compacted to achieve a density and profile consistent and thoroughly integrated with the adjacent pavement.

MHD means the Massachusetts Highway Department.

Mass. Highway Standards means the "Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges, 1988 edition."

Municipality means any Massachusetts city or town having subordinate and local powers of legislation.

Newly Paved Road means a road whose re-paving is less than five years old.

Organic Soil means soil high in organic content, usually dark (brown or black) in color. When considerable fibrous material is the principal constituent, it is generally classified as "peat." Plant remains or a woody structure may be recognized and the soil usually has a distinct odor. Organic soil may exhibit little (or a trace of) plasticity.

Permanent Patch means a final repair of street opening work to be performed in accordance with these standards and intended to permanently return the opened portion of the roadway to as good a condition as it was prior to the performance of the street opening work.

Permit means a permit granted by a Municipality to a Utility for permission to do street opening work in a public way.

Plasticity means that property of soil that allows it to be deformed or molded without crumbling (like dough or soft rubber). This property reflects the capacity of soil to absorb moisture.

Poorly Graded Soil means soil that contains a large percentage of its constituent particles within a relatively narrow range; also referred to as "uniform" soil.

Sand means coarse grained soil in which the individual grains can be visually detected. When moist it forms a cast which will crumble when lightly touched; when dry, it will not form a cast and will fall apart when confining pressure is released. Sand exhibits no plasticity.

Silt means finely-textured soil. When moist, it forms a cast which can be freely handled; when wet, it readily puddles; when dry, it may be cloddy and readily pulverizes into powder with a soft flour-like feel (i.e., low dry strength). Silt exhibits little or no plasticity.

Street Opening Work means any cutting, excavating, compacting, construction, repair or other disturbance in or under a public way together with restoration of the public way in accordance with these standards, municipal ordinances and any other applicable law following such disturbance.

Temporary Patch means the application of either cold patch or Type I bituminous concrete compacted to achieve a density equal to that of the surrounding pavement.

Utility means any corporation, city, town or other governmental subdivision, partnership or other organization or any individual engaged within the Commonwealth in any business which is, or the persons engaged in which are, in any respect made subject to the supervision or regulation by the Department of Telecommunications and Energy. For the purposes of these Standards, a Utility shall also mean any person or entity engaged by or on behalf of a Utility to perform Street Opening Work.

Well Graded Soil means soil having its constituent particles within a wide range, also referred to as "non-uniform" soil.

3.0 Permit Requirements

Each Municipality may incorporate in its permit procedures the portions of these standards that shall apply to Utility excavations within its jurisdiction. A permit may be issued with the stipulation that it may be modified or revoked with just cause at any time at the discretion of the Municipality without rendering the Municipality liable in any way. It is recognized that each Municipality shall have the authority to inspect work in progress and the Utility shall correct any deficiencies identified during said inspections.

The following are the requirements that a Municipality may require of a Utility when granting Permits.

- 3.1** The work shall be performed in accordance with plans on file with the Municipality.
- 3.2** The Utility shall notify the Municipality two (2) days prior to the start of work. No work shall be authorized or proceed (except Emergency Repair Work) without said notification.
- 3.3** The Utility shall notify Dig Safe, in accordance with G.L. c. 82 § 40, at least 72 hours prior to the start of work for the purpose of identifying the location of underground utilities.
- 3.4** The Utility shall be responsible to contact the Municipality regarding the field location of any underground traffic control devices on this project.
- 3.5** A copy of the Permit must be on the job site at all times for inspection (except for emergency repair work). Failure to have the permit available could result in suspension of the rights granted by the Permit.
- 3.6** Work, day, and time constraints shall be conditions of the Permit.
- 3.7** If it becomes necessary to open the roadway surface in a larger area than specified in the Permit, the Utility shall apply for an additional Permit to cover the project.
- 3.8** The Utility shall notify the Municipality within 14 days after completion of the physical work.

4.0 Work Standards

- 4.1** All work shall be in compliance with the Mass. Highway Standards as it pertains to utility street excavations and repairs unless modified by these standards.
- 4.2** The Utility shall be responsible for any settlement that may occur as a result of the work done in accordance with the Permit.
- 4.3** The Utility shall be responsible for the ponding of water that may develop within the roadway which was caused by this work.
- 4.4** In the event a street opening failure presents a nuisance or a public safety problem, the Utility shall respond to all trench restoration requests by the Municipality within 48 hours. Non-response within the specified time will result in the required restoration work being done by the Municipality, with all expenses to be paid by the Utility. The Utility shall reimburse the Municipality for the invoiced amount within thirty (30) days.
- 4.5** Failure to respond to trench restoration requests may result in denial of future Permit requests.

5.0 Safety

- 5.1** Provisions shall be made for the safety and protection of pedestrian traffic during the construction period.
- 5.2** The Utility shall be responsible to furnish and erect all required signs and traffic safety devices.
- 5.3** Cones and non-reflecting warning devices shall not be left in operating position on the highway when the daytime operations have ceased. If it becomes necessary for the Municipality to remove any construction warning devices or the appurtenances from the project due to negligence by the Utility, all cost for this work will be charged to the Utility.
- 5.4** Flashing arrow boards will be used as directed when operations occupy the roadway and shall be available for use at all times.

- 5.5** All signs and devices shall conform to the 1988 edition, Revision 3, or subsequent current edition, of the Manual on Uniform Traffic Control Devices (MUTCD).
- 5.6** Efforts shall be made to maintain normal traffic flow, but interruptions or obstructions to traffic shall be defined by conditions of the Permit.
- 5.7** When, in the opinion of the Municipality, the work constitutes a hazard to traffic in any area the Utility may be required to suspend operations during certain hours and to remove any equipment from the roadway.
- 5.8** When a snow or ice condition exists during the progress of this work, the Utility shall keep the area affected by the work safe for travel. The Municipality may restrict work during snow, sleet, or ice storms and subsequent snow removal operations.
- 5.9** The highway surface shall be kept clean of debris at all times and shall be thoroughly cleaned at the completion of the work.
- 5.10** At the completion of the work done in accordance with the Permit, all disturbed areas shall be restored to a condition equal in kind to that which existed prior to the work.
- 5.11** Blasting, if necessary, shall be done in accordance with state law and local ordinance.
- 5.12** The Utility shall supply copies of all log data and analyses collected from groundwater monitoring wells as required by state law and local ordinance.
- 5.13** Massachusetts Highway Department Standards for Line Clearance will conform to the National Electric Safety Code Standard Clearance for Highway Crossings.

6.0 Protection of Adjoining Facilities

- 6.1** If directed by the Municipality, photographs shall be taken prior to the start of work to insure restoration of designated areas to their former conditions within the limits of the work areas. Copies of the photographs shall be delivered to a place designated by the Municipality.

- 6.2** Care must be taken to not interfere with underground structures that exist in the area.
- 6.3** Care shall be exercised not to disturb any existing traffic duct systems. Any such system, if disturbed, shall be restored immediately to its original condition.
- 6.4** The Utility shall be responsible to replace all pavement markings in kind which have been disturbed as a result of work done in accordance with the permit. These pavement markings shall be restored within ten (10) days after this work is performed or as deemed necessary by the Municipality.
- 6.5** Existing guardrail that may be removed or damaged shall be reset or replaced to Mass. Highway Standards.
- 6.6** The Utility will be responsible for any damage caused by its operation to curbing, structures, roadway, etc.
- 6.7** No trees shall be cut or removed under this Permit.
- 6.8** Hand digging shall be required around roots of trees.
- 6.9** Tree Removal
- 6.9.1** The Utility shall obtain written permission from the tree warden of the Municipality if it becomes necessary to remove any tree. Replacement trees must be obtained from an established nursery in accordance with "USA Standard for Nursery Stock". The trees will be replaced in size and specie as directed by said tree warden.
- 6.9.2** The tree stump shall be removed a minimum of six inches below the surrounding surface and all debris shall be disposed of outside the right-of-way line.
- 6.9.3** The tree shall be removed under the supervision of a qualified tree surgeon.
- 6.10** Every effort shall be made to protect bound markers. However, if it becomes necessary to remove and reset any bound marker, the Utility shall hire a registered professional land surveyor to perform this work. It shall be the responsibility of this land surveyor to submit to the Municipality a

statement in writing and a plan containing his stamp and signature showing that said work has been performed.

6.11 These standards do not cover the installation of any utility poles.

7.0 Excavations

7.1 The surface of a roadway to be excavated for utility work shall be cut in reasonably straight and parallel lines using a jack hammer, saw or other accepted method to insure the least amount of damage to the roadway surface. The pavement, including reinforcing steel on concrete roadways, shall be cut the full depth of surfacing. The excavation shall only be between these lines. The cutting operation shall not be done with a backhoe, gradall or any type of ripping equipment.

7.2 Steel plates used by a Utility to protect an excavation shall be of sufficient thickness to resist bending, vibration, etc., under traffic loads and shall be anchored securely to prevent movement. If these conditions are not met, the Utility will be required to backfill and pave the excavations daily. No open trench shall be left unattended overnight.

7.3 Steel Sheeting, shoring or bracing shall be driven or placed for all depths over five (5) feet. At the discretion of the Municipality, said sheeting shall be left in place and cut off two (2) feet below the surface.

7.4 When a Utility installs a service lateral to a customer an opening may be made over the common supply line to make the proper connection, but the service should be bored or driven the remainder of the way wherever possible.

7.5 Water jetting of the trench area is prohibited.

8.0 Backfill and Compaction

In restoring municipal streets, lanes and highways, Utilities may utilize approved backfill material compacted to achieve soil density values of 95%modified Proctor

density (as described in AASHTO T180), which may include, as the conditions warrant, the use of Controlled Density Fill (CDF)

- 8.1** If CDF is the selected option of the Utility, when backfilling excavations made for the installation or maintenance of a natural gas line, the Utility may backfill with sand and compact to a level six inches over the gas line before adding CDF to the trench.
- 8.2** If CDF is the selected option of the Utility, excluding the exception granted in 8.1, CDF shall flow under and around the pipe, conduit, or bedding material providing uniform support without leaving voids. CDF shall be discharged from the mixer by a reasonable means into the trench area to be filled. Filling operations shall proceed simultaneously on both sides of the pipe or conduit so that the two fills are kept at approximately the same elevation at all times. An external load shall be applied to the pipe or conduit, sufficient to hold it in place before filling.
- 8.3** The trench in all cases shall be filled to the bottom of the existing pavement to provide room for the pavement restoration.
- 8.4** CDF shall be utilized for those excavations where compaction cannot be readily accomplished with normal compaction methods (i.e. vacuum holes, utility clusters).
- 8.5** The following subsections provide general guidelines and criteria to determine whether a soil is suitable as backfill for Utility excavations in roadways. They prescribe proper procedures for backfilling and compaction to achieve soil density values of 95% modified Proctor density. The ultimate objective is to obtain a finished road surface repair which will undergo settlements only within acceptable performance limits as defined within these standards for the functional life of the existing road. The guidelines are based on good engineering practice and testing of both materials and equipment.
- 8.6** Compliance with these standards will insure satisfactory compaction. These standards are to be used in the field when there is an absence of sieve analysis of materials, Proctor values of the soils and the corresponding inability to utilize a nuclear density gauge or sand cone field density test. The

Utility shall not be required to use other accepted testing methods. However, the Municipality reserves the right, at its own expense, to utilize other accepted testing methods to verify compaction. In the event of test failure the Utility shall be responsible for re-compacting the excavation to meet the required standards.

8.7 Suitability of Backfill Material

8.7.1 This section addresses suitability of materials to obtain an adequate level of compaction.

8.7.2 Suitable backfill material is free of stones larger than half the size of the compacted lift as provided for in Mass. Highway Standards, construction debris, trash, frozen soil and other foreign material. It consists of the following:

- a. Well graded gravel and sand;
- b. Poorly graded gravel and sand;
- c. Gravel-sand mixtures with a small amount of silt;
- d. Gravel-sand mixtures with a small amount of silt and trace amounts of clay.

8.7.3 Unsuitable backfill materials consist of the following:

- a. Inorganic silts and clays;
- b. Organic silts;
- c. Organic soils including peat, humus, topsoil, swamp soils, mulch, and soils containing leaves, grass, branches, and other fibrous vegetable matter.

8.8 Evaluation Of Excavated Soil

8.8.1 The soil excavated from a trench shall be evaluated by trained personnel to determine whether or not it is suitable as a backfill in accordance with Subsection 8.7.

8.8.2 An excavated soil that has been evaluated as suitable for backfill shall be reused provided its moisture content has been determined to be "suitable" in accordance with Subsection 8.9.

8.8.3 An excavated soil that has been evaluated as unsuitable for backfill shall be removed from the site and disposed of properly.

8.8.4 New material, which meets the requirements of Subsection 8.7, shall be brought in to replace excavated soil found to be unsuitable.

8.9 Proper Moisture Content for Backfill Material

Proper moisture content (i.e., ratio of moisture to mineral solid by weight in a soil) in a backfill is essential for effective compaction. Soils with too much moisture (wet) or too little moisture (dry) would not yield an adequate level of compaction. All material used as backfill shall be examined by testing a sample prior to backfilling. This requirement applies to excavated soil to be reused as backfill and to new replacement material.

8.10 Field Determination of Moisture Content

8.10.1 Trained personnel will conduct the following field test of moisture content, also referred to as a "soil ball" test.

8.10.2 The personnel conducting the soil ball test must do the following:

a. First take a handful of the particular soil from beneath the surface of a stockpile (i.e., excavated from a trench or obtained from a borrow area) and

Then;

b. squeeze the sample firmly making a closed fist;

c. open the hand and observe the condition of the soil ball;

d. if the soil ball is loose and crumbly, the soil is too dry for compaction;

e. if the soil ball drips water, the soil is too wet for compaction;

f. if the soil ball holds together firmly or breaks into large chunks, the soil has suitable moisture content for compaction.

8.11 Corrective Treatment When Moisture Content is Not Suitable:

a. if the soil is too dry, small amounts of water may be added by sprinkling;

b. if the soil is too wet, the soil may be dried out by spreading it out and exposing it to the atmosphere;

c. after the remedial treatment, the soil shall be tested again (Subsection 8.10.2);

d. if the corrective treatment is not effective, the soil shall be removed from the site and disposed of properly.

8.12 Backfill and Compaction Of Excavations

8.12.1 Backfill and compaction shall be performed in accordance with Subsections 8.12.2 through 8.12.6, or Subsections 8.12.7 and 8.12.8. All utility lines shall be properly bedded with materials and in depths as specified by the

appropriate utility prior to backfilling to obtain compaction values of 95% modified Proctor density.

8.12.2 Compaction equipment which may be used is specified in Table A. Compactors shall be operated in approximately the vertical position.

8.12.3 Care should be exercised when compacting near a buried facility to avoid damage to the facility.

8.12.4 The bottom of the excavation shall be level, free of stones and compacted in accordance with Subsection 8.12.5 prior to commencement of backfilling.

8.12.5 Compaction shall be performed by making a minimum of four (4) passes per lift with the compactor. The passes shall start around the perimeter of the excavation and move toward the center in an inward spiral.

8.12.6 Backfill material shall be placed in lifts with the loose thickness (i.e., prior to compaction) as specified in Table A.

8.12.7 The effectiveness of any compaction method used other than that specified in this Section, including Table A, shall be determined by testing to establish the pre-compacted or loose thickness of lifts, the number of passes with the compactor required to obtain the desired results, the type of compacting tool used and the soil type.

8.12.8 All maintenance work shall be compacted in 6" lifts. Construction work shall, based on the specific compaction equipment used, utilize Table A to determine appropriate lifts. Construction work shall be defined as the installation of new or replacement facilities.

| TABLE A | |
|--|---------------------------|
| Tool | Thickness of Lifts |
| Pneumatic Air Tamper | 6" |
| Percussive Wacker Rammer | 6" – 12" |
| Vibratory Compactor (7000lb) | 6" – 12" |
| Pavement Breaker Tamping Foot (60-90lb) | 6" |

8.12.9 Well graded gravel that may exist immediately under the paved surface shall be replaced in like-compacted depth.

8.12.10 All leak detection holes (i.e., bar holes) shall be filled in lifts with an appropriate mineral filler and compacted to the bottom of the pavement.

8.13 Compaction Verification

8.13.1 Compaction verification shall be performed in accordance with the following to assure that 95% modified Proctor density has been achieved:

- a. The compaction of each lift shall be verified using a Dynamic Cone Penetrometer (DCP) or equivalent as approved by the Municipality. For standard maintenance excavations, each lift shall be verified at one location. For longer excavations (i.e., trenches), a DCP test shall be made approximately every 25 feet for each lift.
- b. A DCP test shall be considered acceptable if, after 15 drops, the pass/fail reference line on the DCP is above the soil surface.
- c. An unacceptable DCP test shall require that corrective measures be taken until an acceptable DCP test is achieved. This may include making additional passes with the compactor or, in some cases, removing the backfill material and starting over.

8.14 Training

Field personnel performing backfill and compaction operations shall be trained in the implementation of this procedure. Personnel shall receive retraining every two years.

The Utility shall certify with the submission of a Permit application that all personnel are properly trained

9.0 Pavement Restoration

- 9.1** The Utility shall be responsible to replace all pavement disturbed by work under the Permit with homogeneous and in-kind pavement, unless otherwise stipulated, to the original strength and condition.
- 9.2** Single gradation (Type I, surface course) bituminous concrete patches may be used when the existing pavement depth is less than three inches, provided that the new patch is installed to a depth 1 inch greater than the surrounding pavement.
- 9.3** Single gradation (Type I, binder course) bituminous concrete may be used where post grind and inlay method is a condition of the Permit. Minimum allowable depth of pavement shall be four inches when utilizing the grind and inlay method. When the grind and inlay method is performed, the surface of the pavement shall be uniformly ground and removed to a minimum depth of 1.5 inches for subsequent pavement replacement. The grinding procedure shall provide a cutback into existing undisturbed pavement and shall encompass all disturbed pavement areas of the excavation. Grinding shall be done in reasonably straight lines.
- 9.4** All non-emergency pavement excavations shall be repaired with same day permanent patches unless specifically exempted in the permit.
- 9.5** Same day patches installed in conformance with these standards will not require re-excavation and may utilize the infrared method or the grind and inlay method to correct subsequent settlements. However, the restoration of single patches up to five feet by seven feet in area shall be by the infrared method, unless another method is agreed to by the Municipality.

- 9.6** Immediately following the procedures outlined in the section for Backfill and Compaction, the adjacent pavement shall be cut back, full depth, to encompass all disturbed pavement areas and underlying cavities associated with the excavation. All cutbacks shall be done in reasonably straight and parallel lines.
- 9.7** All existing pavement surfaces shall be swept clean of dirt, dust, and debris prior to patching. The existing vertical pavement surfaces shall be tack coated with an appropriate asphalt tacking material prior to patching and subsequent to cleaning.
- 9.8** Pavement repair depths shall equal or exceed adjoining pavement depths. When existing pavement depths are greater than 2 inches, pavement repairs shall be made utilizing Type I, binder course in the underlying patch courses. The wearing surface shall be a minimum 1.5 inches of Type I, surface course. Pavement courses shall not exceed two inches. All pavement courses shall be thoroughly compacted prior to placement of subsequent courses.
- 9.9** When the pavement remaining between an excavation and the edge of the roadway is less than two feet, the remaining area shall be removed and replaced in conjunction with the permanent pavement repair.
- 9.10** All leak detection holes (i.e. bar holes) shall be filled to refusal with appropriate asphalt filler to a depth equal to the surrounding pavement depth.
- 9.11** Temporary pavement repairs shall be permitted under the following conditions:
- a. Emergency Repair Work completed outside normal Monday through Friday working hours.
 - b. Work performed between December 1 and March 30 when bituminous concrete is not available on a daily basis.
 - c. Excavations which shall be reopened within five (5) working days.
- 9.12** The Utility shall make every effort to limit excavations conducted under the aforementioned conditions.

- 9.13** All excavation, back fill, and compaction work associated with temporary patches shall be performed in accordance with these standards.
- 9.14** Temporary patches shall be made with high-performance cold patch or Type I, bituminous concrete to a minimum depth of 4 inches. Temporary patches made between December 1 and March 30 shall be removed and replaced with a permanent patch as outlined above within five (5) working days. Temporary patches made between April 1 and November 30 shall be removed and replaced with a permanent patch as outlined above within two (2) working days.
- 9.15** The Utility shall be responsible to maintain temporary patches in a safe condition for all types of travel until a permanent pavement repair has been made.
- 9.16** The Municipality shall have jurisdiction to determine the pavement repair method to be utilized on all pavements which have been installed for less than five years.
- 9.17** Completed pavement repairs shall not deviate more than 0.25 inches from the existing street surface.
- 9.18** No less than thirty (30) days and no more than sixty (60) days from the completion of the permanent pavement repair, the Utility shall inspect the excavation for settlements, cracking and other pavement defects. Any such excavation which has required repair shall then be reinspected no less than thirty (30) days and no more than sixty (60) days from the completion of the subsequent repair. The Utility shall further inspect all excavations after a one-year time period. Pavements that deviate more than 0.25 inches from the existing street surface shall be repaired by the infrared or grind and inlay methods. Surface or joint cracking 0.25 inches wide or greater shall be repaired utilizing a modified asphalt pavement sealant.
- 9.19** The Utility shall prepare, document and maintain records of these inspections and make them available to the Municipality and the Department upon request.

- 9.20** All excavations made within concrete roadways shall be repaired with concrete in depths equal to the existing concrete.
- 9.21** Concrete used for repairs shall conform to the requirements of Mass. Highway Standards for concrete roadway construction.

10.0 Sidewalks and Driveways

- 10.1** All work shall be performed in accordance with 521 CMR Rules and Regulations of the Architectural Access Board (AAB) and Americans with Disabilities Act (ADA).
- 10.2** A sidewalk area that is disturbed shall be restored, full width, in kind a minimum of one foot beyond the disturbed area for bituminous concrete and to the next joint line for concrete.
- 10.3** After the subgrade has been prepared, a foundation of gravel shall be placed upon it. After thorough mechanical compaction, the foundation shall be at least 8 inches thick and parallel to the proposed surface of the walk.
- 10.4** If applicable, the bituminous concrete sidewalk surface shall be laid in 2 courses to a depth after rolling of 3 inches. The bottom course shall be 1 1/2 inches thick and its surface after rolling shall be 1/2 inches below the parallel to the proposed grade of the finished surface. The top course shall be 1 1/2 inches thick after rolling.
- 10.5** If applicable, the concrete sidewalk shall be placed in alternate slabs 30 feet in length.
- The slabs shall be separated by transverse preformed expansion joint filler 1/2 inch thick (shall conform to AASHTO- M153). Preformed expansion joint filler shall also be placed adjacent to or around existing structures.
- 10.6** On the foundation as specified above, the concrete (Air-Entrained 4000 psi, 3/4" 610) shall be placed in such quantity that after being thoroughly consolidated in place it shall be 4 inches in depth. At driveways, the sidewalk shall be 6 inches in depth.

- 10.7** Driveways shall be surfaced with Bituminous Concrete, Type 1 and shall be laid in two courses to a depth of three inches, after rolling, with a foundation of at least six inches of compacted gravel. The finished surface shall butt into and not overlap the existing highway grade at the road edge.
- 10.8** Driveways shall be so graded that no water shall enter the layout, pond or collect thereon, including the roadway.

11.0 Compliance with these Standards

- 11.1** Utilities shall file with the Department, by May 1 of each year, written statements or policies designed to insure that managers, supervisors and other distribution personnel are aware of, and held accountable to, these Standards.
- 11.2** Utilities shall track the success and failures of their programs to include the restorations and the inspections of such restorations. Utilities shall specify the number of failed restorations compared to the total number of restorations made during the preceding calendar year, the number of failures reported by a party other than a utility inspector and the age of the failed restoration.
- 11.3** Utilities shall record the number of failed restorations encountered during the inspections required in Section 9.19. They shall also document the cause of the failure and their policy changes to prevent the recurrence of a similar failure.
- 11.4** Utilities shall record the number of failed restorations and cost incurred when Municipalities perform the corrective action in accordance with Section 4.4.

CONDITIONS AND REQUIREMENTS PURSUANT TO G.L.C.82A AND 520 CMR 7.00 et seq. (as amended)

By signing the application, the applicant understands and agrees to comply with the following:

- i. No trench may be excavated unless the requirements of sections 40 through 40D of chapter 82, and any accompanying regulations, have been met and this permit is invalid unless and until said requirements have been complied with by the excavator applying for the permit including, but not limited to, the establishment of a valid excavation number with the underground plant damage prevention system as said system is defined in section 76D of chapter 164 (DIG SAFE);
- ii. Trenches may pose a significant health and safety hazard. Pursuant to Section 1 of Chapter 82 of the General Laws, an excavator shall not leave any open trench unattended without first making every reasonable effort to eliminate any recognized safety hazard that may exist as a result of leaving said open trench unattended. Excavators should consult regulations promulgated by the Department of Public Safety in order to familiarize themselves with the recognized safety hazards associated with excavations and open trenches and the procedures required or recommended by said department in order to make every reasonable effort to eliminate said safety hazards which may include covering, barricading or otherwise protecting open trenches from accidental entry.
- iii. Persons engaging in any in any trenching operation shall familiarize themselves with the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 et.seq., entitled Subpart P “Excavations”.
- iv. Excavators engaging in any trenching operation who utilize hoisting or other mechanical equipment subject to chapter 146 shall only employ individuals licensed to operate said equipment by the Department of Public Safety pursuant to said chapter and this permit must be presented to said licensed operator before any excavation is commenced;
- v. By applying for, accepting and signing this permit, the applicant hereby attests to the following: (1) that they have read and understands the regulations promulgated by the Department of Public Safety with regard to construction related excavations and trench safety; (2) that he has read and understands the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CMR 1926.650 et.seq., entitled Subpart P “Excavations” as well as any other excavation requirements established by this municipality; and (3) that he is aware of and has, with regard to the proposed trench excavation on private property or proposed excavation of a city or town public way that forms the basis of the permit application, complied with the requirements of sections 40-40D of chapter 82A.
- vi. This permit shall be posted in plain view on the site of the trench.

For additional information please visit the Department of Public Safety’s website at www.mass.gov/dps

Summary of Excavation and Trench Safety Regulation (520 CMR 14.00 et seq.)

This summary was prepared by the Massachusetts Department of Public Safety pursuant to G.L.c.82A and does not include all requirements of the 520 CMR 14.00. To view the full regulation and G.L.c.82A, go to www.mass.gov/dps

Pursuant to M.G.L. c. 82, § 1, the Department of Public Safety, jointly with the Division of Occupational Safety, drafted regulations relative to trench safety. The regulation is codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. The regulation requires all excavators to obtain a permit prior to the excavation of a trench made for a construction-related purpose on public or private land or rights-of-way. All municipalities must establish a local permitting authority for the purpose of issuing permits for trenches within their municipality. Trenches on land owned or controlled by a public (state) agency requires a permit to be issued by that public agency unless otherwise designated.

In addition to the permitting requirements mandated by statute, the trench safety regulations require that all excavators, whether public or private, take specific precautions to protect the general public and prevent unauthorized access to unattended trenches. Accordingly, unattended trenches must be covered, barricaded or backfilled. Covers must be road plates at least ¾" thick or equivalent; barricades must be fences at least 6' high with no openings greater than 4" between vertical supports; backfilling must be sufficient to eliminate the trench. Alternatively, excavators may choose to attend trenches at all times, for instance by hiring a police detail, security guard or other attendant who will be present during times when the trench will be unattended by the excavator.

The regulations further provide that local permitting authorities, the Department of Public Safety, or the Division of Occupational Safety may order an immediate shutdown of a trench in the event of a death or serious injury; the failure to obtain a permit; or the failure to implement or effectively use adequate protections for the general public. The trench shall remain shutdown until re-inspected and authorized to re-open provided, however, that excavators shall have the right to appeal an immediate shutdown. Permitting authorities are further authorized to suspend or revoke a permit following a hearing. Excavators may also be subject to administrative fines issued by the Department of Public Safety for identified violations.

Summary of 1926 CFR Subpart P -OSHA Excavation Standard

This is a worker protection standard, and is designed to protect employees who are working inside a trench. This summary was prepared by the Massachusetts Division of Occupational Safety and not OSHA for informational purposes only and does not constitute an official interpretation by OSHA of their regulations, and may not include all aspects of the standard.

For further information or a full copy of the standard go to www.osha.gov.

- **Trench Definition per the OSHA standard:**
 - An excavation made below the surface of the ground, narrow in relation to its length.
 - In general, the depth is greater than the width, but the width of the trench is not greater than fifteen feet.
- **Protective Systems** to prevent soil wall collapse are always required in trenches deeper than 5', and are also required in trenches less than 5' deep when the competent person determines that a hazard exists. Protection options include:
 - Shoring. Shoring must be used in accordance with the OSHA Excavation standard appendices, the equipment manufacturer's tabulated data, or designed by a registered professional engineer.
 - Shielding (Trench Boxes). Trench boxes must be used in accordance with the equipment manufacturer's tabulated data, or a registered professional engineer.
 - Sloping or Benching. In Type C soils (what is most typically encountered) the excavation must extend horizontally 1 ½ feet for every foot of trench depth on both sides, 1 foot for Type B soils, and ¾ foot for Type A soils.
 - A registered professional engineer must design protective systems for all excavations greater than 20' in depth.
- **Ladders** must be used in trenches deeper than 4'.
 - Ladders must be inside the trench with workers at all times, and located within 25' of unobstructed lateral travel for every worker in the trench.
 - Ladders must extend 3' above the top of the trench so workers can safely get onto and off of the ladder.
- **Inspections** of every trench worksite are required:
 - Prior to the start of each shift, and again when there is a change in conditions such as a rainstorm.
 - Inspections must be conducted by the competent person (see below).
- **Competent Person(s) is:**
 - Capable (i.e., trained and knowledgeable) in identifying existing and predictable hazards in the trench, and other working conditions which may pose a hazard to workers, and
 - Authorized by management to take necessary corrective action to eliminate the hazards. Employees must be removed from hazardous areas until the hazard has been corrected.
- **Underground Utilities** must be:
 - Identified prior to opening the excavation (e.g., contact Digsafe).
 - Located by safe and acceptable means while excavating.
 - Protected, supported, or removed once exposed.
- **Spoils** must be kept back a minimum of 2' from the edge of the trench.
- **Surface Encumbrances** creating a hazard must be removed or supported to safeguard employees. Keep heavy equipment and heavy material as far back from the edge of the trench as possible.
- **Stability of Adjacent Structures:**
 - Where the stability of adjacent structures is endangered by creation of the trench, they must be underpinned, braced, or otherwise supported.
 - Sidewalks, pavements, etc. shall not be undermined unless a support system or other method of protection is provided.
- **Protection from water accumulation hazards:**
 - It is not allowable for employees to work in trenches with accumulated water. If water control such as pumping is used to prevent water accumulation, this must be monitored by the competent person.
 - If the trench interrupts natural drainage of surface water, ditches, dikes or other means must be used to prevent this water from entering the excavation.
- **Additional Requirements:**
 - For mobile equipment operated near the edge of the trench, a warning system such as barricades or stop logs must be used.
 - Employees are not permitted to work underneath loads. Operators may not remain in vehicles being loaded unless vehicles are equipped with adequate protection as per 1926.601(b)(6).

- Employees must wear high-visibility clothing in traffic work zones.
- Air monitoring must be conducted in trenches deeper than 4' if the potential for a hazardous atmosphere exists. If a hazardous atmosphere is found to exist (e.g., $O_2 < 19.5\%$ or $> 23.5\%$, 20% LEL, specific chemical hazard), adequate protections shall be taken such as ventilation of the space.
- Walkways are required where employees must cross over the trench. Walkways with guardrails must be provided for crossing over trenches $> 6'$ deep.
- Employees must be protected from loose rock or soil through protections such as scaling or protective barricades.